IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants	:	Tomohiro Nishi, et al.
Serial No.	:	10/085,659
Filed	:	February 26, 2002
For	:	OPTICAL STATE MODULATION METHOD AND SYSTEM, AND OPTICAL STATE MODULATION APPARATUS
Examiner	:	Yenke, Brian P.
Art Unit	:	2622
Confirmation No.	:	8660

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted via Electronic Filing Services on December 14, 2007.

DeAndre Breeland
(Name of person signing transmittal)

Signature

December 14, 2007
Date of Signature

**APPEAL BRIEF UNDER 37 C.F.R § 41.37
AND PETITION FOR EXTENSION OF TIME**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Non-Final Office Action dated June 14, 2007, Appellants hereby petition for a three-month extension of time, extending the period for response to and including December 14, 2007. Appellants submit herewith an electronic payment in the amount of $1,050.00 for the payment of the extension fee. Appellants submit herewith a Notice of

Appeal and an Appeal Brief for the above-identified application. Appellants submit herewith an electronic payment in the amount of $20.00 for the difference between the previously paid Notice of Appeal fee ($500.00 on June 28, 2006), Appeal Brief fee ($500.00 on August 31, 2006) and the newly increased Notice of Appeal fee ($510.00), Appeal Brief fee ($510.00).

1. REAL PARTY IN INTEREST

The real party in interest is Sony Corporation, a Japanese Corporation with offices at 7-35 Kitashinagawa 6-Chome, Shinagawa-ku, Tokyo, 141-0001 Japan,. The assignment of this application is recorded in the United States Patent and Trademark office at Reel 012944; Frame 0411.

2. RELATED APPEALS AND INTERFERENCES

Upon information and belief, the undersigned attorney does not believe that there is any appeal or interference that will directly affect, be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF THE CLAIMS

The Application was filed with claims 1-23 on February 26, 2002, and assigned Application Serial No. 10/085,659. This application claims the benefit of Japanese Patent Application No. 2001-283180, filed on September 18, 2001, respectively.

The Examiner issued an Office Action on November 26, 2004. In the Office Action, the Examiner rejected claims 1-23 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6,674,561. In response,

Appellants submitted a Terminal Disclaimer on February 28, 2005 thereby obviating the Double Patenting rejection.

The Examiner then issued an Office Action on June 21, 2005. In the Office Action, the Examiner rejected claims 1-23 under a provisional obviousness-type double patenting rejection over claims of copending Application No. 10/385,225. In response, Appellants submitted a Terminal Disclaimer on September 21, 2005 thereby obviating the Double Patenting rejection.

The Examiner then issued an Office Action on November 25, 2005. In the Office Action, the Examiner rejected claims 1-23 under 35 U.S.C. §102(b) as allegedly anticipated by WO 01/33846 to Burstyn (hereinafter, merely "Burstyn"). In response, Appellants submitted an amendment on February 16, 2006 thereby adding the limitation "...a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation" to independent claims 1 and 10-23.

The Examiner then issued a Final Rejection on March 7, 2006. In the Office Action, the Examiner rejected claim 1-23 under 35 U.S.C. §103(a) as allegedly unpatentable over Burstyn. In response, on May 24, 2006 Appellants submitted a response traversing the rejections to the claims.

The Examiner issued an Advisory Action on June 8, 2006, maintaining the rejections recited in the Final Office Action and incorporating U.S. Patent No. 6,950,532 to Schumann et al. (hereinafter, merely "Schumann") as further support.

A Notice of Appeal was filed by Appellants on June 28, 2006 with a Pre-Appeal Brief Request for Review. A Notice of Panel Decision from Pre-Appeal Brief was mailed on July 31, 2006.

An Appeal Brief was filed by Appellants on August 31, 2006.

The Examiner issued a first Notification of Non-Compliant Appeal Brief on September 26, 2006. In the first Notification of Non-Compliant Appeal Brief, the Examiner stated that the brief was defective in that the Appellants failed to address the Schumann reference pertaining to the limitation for which the Appellant stated was not taught by Burstyn. Appellants filed a response on October 25, 2006, addressing the Schumann reference.

The Examiner issued a second Notification of Non-Compliant Appeal Brief on November 15, 2006. In the second Notification of Non-Compliant Appeal Brief, the Examiner stated that the brief did not identify independent claims 10-23 to the Specification by page and line number and to drawings. Appellants filed a response on December 14, 2006 to identify corresponding page and line number and to drawings, following requests in the second Notification of Non-Compliant Appeal Brief.

The Examiner issued a third Notification of Non-Compliant Appeal Brief on January 17, 2007. In the third Notification of Non-Compliant Appeal Brief, the Examiner stated that the brief contained an improper heading that were improper under 37 C.F.R. § 41.37. The heading "Group of Claims" was required to be combined with "Arguments". Appellants filed a response on February 16, 2007 to combine "Group of Claims" with "Arguments", following requests in the third Notification of Non-Compliant Appeal Brief.

The Examiner reopened the prosecution and issued an Office Action on June 14, 2007. In the Office Action, the Examiner rejected claims 1-23 under 35 U.S.C. § 103 (a) as being unpatentable over Burstyn in view of Frankowski et al. (disclosed in US 20050035314, paragraph 84, as a reference, herein after merely Frankowski) and Schumann.

Accordingly, the status of the claims may be summarized as follows:

Claims Allowed:	None.
Claims Rejected:	1-23.
Claims Appealed:	1-23.

The rejected claims 1-23 are set forth in the Appendix attached hereto.

Appellants appeal the Rejection of claims 1-23, which constitute all of the currently pending claims in this application.

4. STATUS OF THE AMENDMENTS

Appellants believe that all the submitted Amendments and Appeal Brief have been entered.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

The citations to Figures and Specification locations are provided immediately following elements of independent claim 1, which is summarized below. However, such citations are provided merely as examples and are not intended to limit the interpretation of the claims or to evidence or create any estoppel.

There are fifteen independent claims (1 and 10-23) in the instant application at issue in this appeal, and are directed to optical state modulation which comprises a step of periodically modulating luminance (Pages, 7, 12-17) of an original display image in temporal domain (Pages 20-22) so as to present an optical state variation (Pages 5-6, 10), which is independent of the original display image and does not hamper direct watching thereof, on a recorded image obtained through image-capturing of the original display image.

Claim 1 is directed to an optical state modulation method comprising: periodically modulating luminance (Page 7, lines 6-15, Pages 12-17) of an original display image in temporal domain (Figures 3 and 4; Pages 20-22) to generate an optical state variation on a recorded image that is obtained by image-capturing of the modulated display image (Page 19, line 20 - Page 21,

line 10), said optical state variation being independent of said original display image and without generating a hampering effect when said displayed image is directly watched (Page 24, lines 12-26), utilizing a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 10 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a projection type display apparatus projecting a display image onto a screen; and an optical state modulation apparatus acting on a projection light in an projection light path to apply a periodic luminance modulation in temporal domain on an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10), said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 11 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a projection type display apparatus projecting a display image onto a screen; and an optical state modulation apparatus controlling a light source of said display apparatus to apply a periodic luminance modulation in temporal domain to an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10), said

optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 12 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a projection type display apparatus projecting a display image onto a screen; and an optical state modulation apparatus controlling an image signal of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10), said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 13 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a direct view type display apparatus displaying a display image onto a display screen; and an optical state modulation apparatus generating an effect on a display light to apply a periodic luminance modulation in temporal domain on an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10), said optical state

variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 14 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a direct view type display apparatus displaying a display image onto a display screen; and an optical state modulation apparatus controlling a light source of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10), said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 15 is directed to an optical state modulation application system (Page 7, lines 6-15, Pages 12-17) comprising: a direct view type display apparatus displaying a display image onto a display screen; and an optical state modulation apparatus controlling an image signal of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image (Figures 3 and 4; Pages 20-22), wherein the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image (Page 19, line 20 - Page 21, line 10),

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 16 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to a projection light projected from a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image displayed on a screen to which the modulated projection light is projected, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 17 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to a light source of a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image displayed on a screen to which a projection light from the modulated light source is projected, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines

12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 18 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to an image signal of a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image displayed on a screen to which a projection light according to the modulated image signal is projected, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 19 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to a display light of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image of the modulated display light of said direct view type display apparatus, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its

circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 20 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to a light source of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image from the modulated light source of said direct view type display apparatus, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 21 is directed to an optical state modulation apparatus (Page 7, lines 6-15, Pages 12-17) of a luminance modulation application system, wherein: a periodic luminance modulation in temporal domain is applied to an image signal of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image (Figures 3 and 4; Page 19, line 20 - Page 22), said displayed image being an image according to the modulated image signal of said direct view type display apparatus, said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 22 is directed to an apparatus for displaying an image (Page 7, lines 6-15, Pages 12-17), comprising: a display unit, and a modulation unit generating temporal modulation in an original image to be displayed on said display unit, wherein said luminance modulation causes an optical state variation perceivable by a human vision on a recorded image obtained by image-capturing of the modulated original display image (Figures 3 and 4; Page 19, line 20 - Page 22), and said optical state variation causes no substantial visible effect perceivable by the human vision when said modulated original display image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

Claim 23 is directed to an apparatus for displaying an image (Page 7, lines 6-15, Pages 12-17), comprising: means for displaying an image; and means for generating temporal modulation in an original image to be displayed, wherein said luminance modulation causes an optical state variation perceivable by a human vision on a recorded image obtained by image-capturing of the modulated original display image (Figures 3 and 4; Page 19, line 20 - Page 22), and said optical state variation causes no substantial visible effect perceivable by the human vision when said modulated original display image is directly watched (Page 24, lines 12-26), and a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation (Figure 7; Page 26, line 21 - Page 27, line 13).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants request review of the rejection of:

Claims 1-23 were rejected under 35 U.S.C. § 103 (a) as being unpatentable over Burstyn in view of Frankowski and further in view of Schumann.

7. ARGUMENTS

Claims 1-23 fall into four separate groups. Group I: claims 1-9; with independent claim 1. Group II: independent claims 10-12. Group III: independent claims 13-15, 22 and 23. Group IV: independent claims 16-21.

The §103 Rejections Should be Withdrawn Because Claim Features are Not Disclosed, Taught or Suggested in the Reference

Independent claim 1 recites, *inter alia*:

"An optical state modulation method comprising:

...**utilizing a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation**." (emphasis added)

It is respectfully submitted that Burstyn, Frankowski, and Schumann fail to teach or suggest the above-identified features of claim 1. The Office Action (see page 4 in the Office Action dated June 14, 2007) concedes that combination of Burstyn and Shumann does not disclose the conventional capability of a rotabable filter to having a sinusoidal density variation along its circumferential direction, in said luminance modulation. The Office Action further relies on Frankowski to reject the above identified features of claim 1. Appellants submit that Frankowski does not provide the disclosure missing from Burstyn and Schumann.

The Office Action (see page 4 in the Office Action dated June 14, 2007) cites "a trip pattern whose luminance changes continuously in the form of a sinusoidal waveform is projected with high accuracy by means of the DMD" of Frankowski to reject a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential

direction, in said luminance modulation, as recited in claim 1 (emphasis added). Appellants respectfully submit that Frankowski uses projector not filter to modulate light intensity. Appellants further submit that Frankowski's sinusoidal waveform is in the strip pattern and modulated light in direct contrast with Appellants' claimed utilizing a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction.

Appellants respectfully submit that Burstyn, Frankowski, and Schumann, taken alone or in combination, fail to teach or suggest the above-identified features of claim 1. Specifically, Appellants submit that there is no teaching or suggestion of an optical state modulation method utilizing a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation, as recited in claim 1.

Therefore, claim 1 is patentable.

Independent claims 10-23 recites, *inter alia*:

> "...**a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation**." (emphasis added)

It is respectfully submitted that Burstyn, Frankowski, and Schumann fail to teach or suggest the above-identified features of claims 10-23. The Office Action (see page 4 in the Office Action dated June 14, 2007) concedes that combination of Burstyn and Shumann does not disclose the conventional capability of a rotatable filter to having a sinusoidal density variation along its circumferential direction, in said luminance modulation. The Office Action further relies on Frankowski to reject the above identified features of claims 10-23. Appellants submit that Frankowski does not provide the disclosure missing from Burstyn and Schumann.

The Office Action (see page 4 in the Office Action dated June 14, 2007) cites "a trip pattern whose luminance changes continuously in the form of a sinusoidal waveform is

projected with high accuracy by means of the DMD" of Frankowski to reject a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation, as recited in claims 10-23 (emphasis added). Appellants respectfully submit that Frankowski uses projector not filter to modulate light intensity. Appellants further submit that Frankowski's sinusoidal waveform is in the strip pattern and modulated light in direct contrast with Appellants' claimed a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction.

Appellants respectfully submit that Burstyn, Frankowski, and Schumann, taken alone or in combination, fail to teach or suggest the above-identified features of claims 10-23. Specifically, Appellants submit that there is no teaching or suggestion of a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation, as recited in claims 10-23.

Therefore, claims 10-23 are patentable.

Claims 2-9 are each dependent from one of the independent claims discussed above and are therefore patentable for at least the above-identified reasons.

CONCLUSION

For the reasons discussed above, claims 1-23 are patentable. It is, therefore, respectfully submitted that the Examiner erred in rejecting claims 1-23, and a reversal by the Board is solicited.

Respectfully submitted,
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APPENDIX I

CLAIMS ON APPEAL

1. (Previously Presented) An optical state modulation method comprising:

periodically modulating luminance of an original display image in temporal domain to generate an optical state variation on a recorded image that is obtained by image-capturing of the modulated display image,

said optical state variation being independent of said original display image and without generating a hampering effect when said displayed image is directly watched,

utilizing a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, in said luminance modulation.

2. (Original) The optical state modulation method according to claim 1, wherein,

when said luminance modulation is performed based on a sinusoidal waveform, an amplitude and frequency of said sinusoidal waveform are determined to satisfy a first condition,

said first condition being that an amplitude and frequency of said optical state variation in each frame of said recorded image obtained by an image-capturing apparatus correspond to the value equal or more than a temporal frequency contrast sensitivity of human vision determined at the luminance of said original display image.

3. (Original) The optical state modulation method according to claim 2, wherein,

in addition to said first condition, the amplitude of said sinusoidal waveform is determined to satisfy a second condition,

said second condition being that the amplitude of said luminance modulation is equal or less than an amplitude that is obtained from said temporal frequency contrast sensitivity of human vision by setting a frequency component thereof to the frequency of said sinusoidal waveform determined in claim 2 for the luminance of said original display image.

4. (Original) The optical state modulation method according to claim 1, wherein,

when said luminance modulation is performed based on a composite waveform, an amplitude and frequency of at least one of sinusoidal wave components composing said composite waveform are determined to satisfy a first condition,

said first condition being that an amplitude and frequency of said optical state variation in each frame of said recorded image obtained by an image-capturing apparatus correspond to the value equal or more than a temporal frequency contrast sensitivity of human vision determined at the luminance of said original display image.

5. (Original) The optical state modulation method according to claim 4, wherein,

in addition to said first condition, the amplitude of said at least one of sinusoidal wave components is determined to satisfy a second condition,

said second condition being that the amplitude of said luminance modulation is equal or less than an amplitude that is obtained from said temporal frequency contrast sensitivity of human vision by setting a frequency component thereof to the frequency of said at least one of

sinusoidal wave components determined in claim 4 at the luminance of said original display image.

6. (Original) The optical state modulation method according to claim 1, wherein

said luminance modulation is performed by applying different types of luminance modulation on corresponding spatial positions of said original display image.

7. (Original) The optical state modulation method according to claim 1, wherein

said luminance modulation is performed by applying different types of luminance modulation on corresponding time periods.

8. (Original) The optical state modulation method according to claim 1, wherein

said luminance modulation is performed so as to hold a same display luminance in each frame before and after said luminance modulation, said display luminance being a luminance perceived by a audience.

9. (Original) The optical state modulation method according to claim 1, wherein

said optical state variation appeared on said recorded image is a variation in color domain.

10. (Previously Presented) An optical state modulation application system comprising:

a projection type display apparatus projecting a display image onto a screen; and

an optical state modulation apparatus acting on a projection light in an projection light path to apply a periodic luminance modulation in temporal domain on an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

11. (Previously Presented) An optical state modulation application system comprising:

a projection type display apparatus projecting a display image onto a screen; and

an optical state modulation apparatus controlling a light source of said display apparatus to apply a periodic luminance modulation in temporal domain to an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

12. (Previously Presented) An optical state modulation application system comprising:

a projection type display apparatus projecting a display image onto a screen; and

an optical state modulation apparatus controlling an image signal of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

13. (Previously Presented) An optical state modulation application system comprising:

a direct view type display apparatus displaying a display image onto a display screen; and

an optical state modulation apparatus generating an effect on a display light to apply a periodic luminance modulation in temporal domain on an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

14. (Previously Presented) An optical state modulation application system comprising:

a direct view type display apparatus displaying a display image onto a display screen; and

an optical state modulation apparatus controlling a light source of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

15. (Previously Presented) An optical state modulation application system comprising:

a direct view type display apparatus displaying a display image onto a display screen; and

an optical state modulation apparatus controlling an image signal of said display apparatus to apply a periodic luminance modulation in temporal domain on an original display image, wherein

the luminance of said original display image is modulated to generate an optical state variation on a recorded image obtained through image-capturing of the modulated display image,

said optical state variation being independent of said original display image and generating no hampering effect when said modulated display image displayed on said display screen is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

16. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to a projection light projected from a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image displayed on a screen to which the modulated projection light is projected,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

17. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to a light source of a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image displayed on a screen to which a projection light from the modulated light source is projected,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

18. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to an image signal of a projection type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image displayed on a screen to which a projection light according to the modulated image signal is projected,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

19. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to a display light of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image of the modulated display light of said direct view type display apparatus,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

20. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to a light source of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image from the modulated light source of said direct view type display apparatus,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

21. (Previously Presented) An optical state modulation apparatus of a luminance modulation application system, wherein:

a periodic luminance modulation in temporal domain is applied to an image signal of a direct view type display apparatus to generate an optical state variation on a recorded image that is obtained by image-capturing of a displayed image,

said displayed image being an image according to the modulated image signal of said direct view type display apparatus,

said optical state variation being independent of an original display image and generating no hampering effect when said displayed image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

22. (Previously Presented) Apparatus for displaying an image, comprising:

a display unit, and

a modulation unit generating temporal modulation in an original image to be displayed on said display unit, wherein

said luminance modulation causes an optical state variation perceivable by a human vision on a recorded image obtained by image-capturing of the modulated original display image, and

said optical state variation causes no substantial visible effect perceivable by the human vision when said modulated original display image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

23. (Previously Presented) Apparatus for displaying an image, comprising:

means for displaying an image; and

means for generating temporal modulation in an original image to be displayed, wherein

said luminance modulation causes an optical state variation perceivable by a human vision on a recorded image obtained by image-capturing of the modulated original display image, and

said optical state variation causes no substantial visible effect perceivable by the human vision when said modulated original display image is directly watched, and

a rotation filter, including a rotate-able filter part having a sinusoidal density variation along its circumferential direction, used in said luminance modulation.

APPENDIX II

EVIDENCE

None

APPENDIX III

RELATED PROCEEDINGS

None